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SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
09/072,956	05/05/98	CHUREV M	BPC073

HN11/0828

JOHN D CONWAY
BIOMEASURE INC
27 MAPLE STREET
MILFORD MA 01757-3650

EXAMINER	
RUSSEL, J	
ART UNIT	PAPER NUMBER
1654	4

DATE MAILED: 08/28/98

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO
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BIOMEASURE INC
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RUSSEL J

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1654	9

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This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

☒ Responsive to ~~communication(s)~~ application filed on 5-5-98

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-47 is/are pending in the application.
Of the above, claim(s) _____ is/are withdrawn from consideration.
☐ Claim(s) _____ is/are allowed.
☒ Claim(s) 1-11,13,14,16-18,20,21,23-25,27,28,30-33,35,36,38-41,43,44,46,and 47 is/are rejected.
☒ Claim(s) 12,15,19,22,26,29,34,37,42,and 45 is/are objected to.
☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
☐ The specification is objected to by the Examiner.
☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.
☐ received in Application No. (Series Code/Serial Number) _____.
☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of Reference Cited, PTO-892
☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
☐ Interview Summary, PTO-413
☐ Notice of Draftperson's Patent Drawing Review, PTO-948
☐ Notice of Informal Patent Application, PTO-152

--SEE OFFICE ACTION ON THE FOLLOWING PAGES--

1. A request for corrected filing receipt was received on June 1, 1998. After the mailing of this Office action, the application will be forwarded to Application Division for action on the request.

2. Claims 7-11, 13, 14, 16-18, 20, 21, 23-25, 27, 28, 30-33, 35, 36, 38-41, 43, and 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. At claim 7, page 28, line 32; claim 9, page 30, line 31; claim 10, page 32, line 30; claim 13, page 37, line 12; and claim 14, page 39, line 7; "or" should be changed to --and-- so that standard Markush terminology is used. There is no antecedent basis in the claims for the phrase "the compound" at claim 7, page 29, line 6; claim 9, page 31, line 9; and claim 13, page 37, line 17. It is suggested that "compound" be changed to --analogue-- at each line. At claim 9, page 30, lines 18 and 22, and claim 10, lines 17 and 21, a comma should be inserted after "β-Nal". The proviso clause at the end of claim 10 indicates that at least under some circumstances, A^{13} can be deleted. However, it is noted that in the body of the claim that there is no indication that A^{13} can be deleted. It is unclear as to whether there is any conflict between these two sections of the claim. At claim 11, page 34, line 21, and page 35, lines 3 and 6, it is believed that "des-Glu^{6}" should be changed to --des-Gln^{6}--, because Gln is the residue normally present at position 6 of hPTH. Claims 13 and 14 are indefinite because they do not define the variable "X".

3. It should be noted that because brackets are intended to form part of claims 11, 12, and 15, it will not be possible to amend these claims in accordance with 37 CFR 1.121(b). See 37 CFR 1.121(d).

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-3, 7, 9, and 13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of U.S. Patent No. 5,723,577. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '577 patent anticipate the instant claims. Because of the similarity in structure between the claimed peptides of the '577 patent and Applicants' claimed analogues, inherently the claimed peptides of the '577 patent will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants.

6. Claims 1-3, 7, 9, 10, and 13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 5,717,062. Although the conflicting claims are not identical, they are not patentably distinct from

each other because the claims of the '062 patent anticipate the instant claims. Note that the '062 patent claims analogues in which A_{12} can be D-Ala. Because of the similarity in structure between the claimed peptides of the '062 patent and Applicants' claimed analogues, inherently the claimed peptides of the '062 patent will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants.

7. Claims 1-3, 7, 9, and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 32 of copending Application No. 08/779,768. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '768 application anticipate the instant claims. Because of the similarity in structure between the claimed peptides of the '768 application and Applicants' claimed analogues, inherently the claimed peptides of the '768 patent will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claims 1-3, 7, 9, and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 32 of copending Application No. 08/813,534. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '534 application anticipate the instant claims. Because of the similarity in structure between the claimed peptides of the '534 application

and Applicants' claimed analogues, inherently the claimed peptides of the '534 patent will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.
>
> (f) he did not himself invent the subject matter sought to be patented.
>
> (g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was

commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

For the purposes of this invention, the level of ordinary skill in the art is deemed to be at least that level of skill demonstrated by the patents in the relevant art. Joy Technologies Inc. v. Quigg, 14 USPQ2d 1432 (DC DC 1990). One of ordinary skill in the art is held accountable not only for specific teachings of references, but also for inferences which those skilled in the art may reasonably be expected to draw. In re Hoeschele, 160 USPQ 809, 811 (CCPA 1969). In addition, one of ordinary skill in the art is motivated by economics to depart from the prior art to reduce costs consistent with desired product properties. In re Clinton, 188 USPQ 365, 367 (CCPA 1976); In re Thompson, 192 USPQ 275, 277 (CCPA 1976).

10. Claims 1-3, 7, 9, and 13 are rejected under 35 U.S.C. 102(f) and/or (g) as being anticipated by U.S. Patent No. 5,723,577. See the above obviousness-type double patenting rejection. Note that U.S. Patent '577 and the instant application are not currently commonly owned.

11. Claims 1-9, 13, 16, 20, 23, 27, 30, 31, 35, 38, 39, 43, 46, and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 5,723,577. See the above obviousness-type double patenting rejection. In addition, U.S. Patent '577 teaches the peptides in combination with

pharmaceutically acceptable carriers and teaches the administration of the peptides to stimulate bone growth in a mammal, i.e. for the treatment of osteoporosis. See, e.g., column 5, lines 8-13 and 23-45. Osteoporosis is a divergence from normal mineral metabolism and homeostasis. Sufficient evidence of similarity between the peptides of the U.S. Patent '577 and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the peptides of the U.S. Patent '577.

12. Claims 1-3, 7, 9, 10, and 13 are rejected under 35 U.S.C. 102(f) and/or (g) as being anticipated by U.S. Patent No. 5,717,062. See the above obviousness-type double patenting rejection. Note that U.S. Patent '062 and the instant application are not currently commonly owned.

13. Claims 1-10, 13, 16, 17, 20, 23, 24, 27, 30-32, 35, 38-40, 43, 46, and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 5,717,062. See the above obviousness-type double patenting rejection. In addition, U.S. Patent '062 teaches the peptides in combination with pharmaceutically acceptable carriers and teaches the administration of the peptides to stimulate bone growth in a mammal, i.e. for the treatment of osteoporosis. See, e.g., column 4, lines 31-64. Osteoporosis is a divergence from normal mineral metabolism and homeostasis. Sufficient evidence of similarity between the peptides of the U.S. Patent '062 and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the peptides of the U.S. Patent '062.

14. Claims 1-3, 7, 9, and 13 are rejected under 35 U.S.C. 102(f) and/or (g) as being anticipated by copending Application No. 08/779,768. See the above provisional obviousness-type double patenting rejection. Note that the '768 application and the instant application are not currently commonly owned.

15. Claims 1-9, 13, 16, 20, 23, 27, 30, 31, 35, 38, 39, 43, 46, and 47 are provisionally rejected under 35 U.S.C. 102(e) as being anticipated by copending Application No. 08/779,768 which has a common inventor with the instant application. See the above provisional obviousness-type double patenting rejection. Further, the '768 application teaches in its specification that its peptides can be combined with pharmaceutically acceptable carriers and administered to stimulate bone growth in a mammal, i.e. for the treatment of osteoporosis. See, e.g., page 12, line 30 - page 14, line 12. Osteoporosis is a divergence from normal mineral metabolism and homeostasis. Sufficient evidence of similarity between the peptides of the '768 application and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the peptides of the '768 application.

Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e), if patented. This provisional rejection under 35 U.S.C. 102(e) is based upon a presumption of future patenting of the copending application.

This provisional rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application

was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

This rejection may not be overcome by the filing of a terminal disclaimer. See *In re Bartfeld*, 925 F.2d 1450, 17 USPQ2d 1885 (Fed. Cir. 1991).

16. Claims 1-3, 7, 9, and 13 are rejected under 35 U.S.C. 102(f) and/or (g) as being anticipated by copending Application No. 08/813,534. See the above provisional obviousness-type double patenting rejection. Note that the '534 application and the instant application are not currently commonly owned.

17. Claims 1-9, 13, 16, 20, 23, 27, 30, 31, 35, 38, 39, 43, 46, and 47 are provisionally rejected under 35 U.S.C. 102(e) as being anticipated by copending Application No. 08/813,534 which has a common inventor with the instant application. See the above provisional obviousness-type double patenting rejection. Further, the '534 application teaches in its specification that its peptides can be combined with pharmaceutically acceptable carriers and administered to stimulate bone growth in a mammal, i.e. for the treatment of osteoporosis. See, e.g., page 10, line 16 - page 11, line 31. Osteoporosis is a divergence from normal mineral metabolism and homeostasis. Sufficient evidence of similarity between the peptides of the '534 application and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the peptides of the '534 application.

Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e), if patented. This provisional rejection under 35 U.S.C. 102(e) is based upon a presumption of future patenting of the copending application.

This provisional rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

This rejection may not be overcome by the filing of a terminal disclaimer. See *In re Bartfeld*, 925 F.2d 1450, 17 USPQ2d 1885 (Fed. Cir. 1991).

18. Claims 1-3, 7, 9, 10, 23, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Holick. Holick teaches the peptides [$Nle^{8,18}$, Tyr^{34}]-bpth(1-34)-NH_2, [$Nle^{8,18}$, Tyr^{34}]-hpth(1-34)-NH_2, [$Nle^{8,21}$, Tyr^{34}]-rpth(1-34)-NH_2, bpth(3-34), [$Nle^{8,18}$, Tyr^{34}]-bpth(3-34)-NH_2, [$Nle^{8,18}$, Tyr^{34}]-bpth(7-34)-NH_2, and [Tyr^{34}]-bpth-NH_2, hpth(13-34) which have the same structure recited in formulas (I) and (II). See column 7. The peptides are combined with pharmaceutically acceptable carriers. See column 12, line 65 - column 13, line 13. Because of the similarity in structure between the peptides of Holick and Applicants' claimed analogues, inherently the peptides of Holick will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants. Sufficient evidence of similarity between the peptides of Holick and Applicants' claimed analogues is deemed to be present to shift the burden

to Applicants to provide evidence that their claimed analogues are unobviously different than the peptides of Holick.

19. Claims 1-9, 16, 23, 30, 31, 38, 39, 46, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Willick et al. Willick et al teaches the PTH analogues from hPTH(1-29)-NH_2 through hPTH(1-31)-NH_2 and from [Leu^{27}]hPTH(1-29)-NH_2 through [Leu^{27}]hPTH(1-31)-NH_2. The analogues are administered in combination with carriers to mammals or humans in need of treatment for osteoporosis, other bone related diseases, and disorders involving bone cell calcium regulation. See, e.g., column 2, lines 43-45 and 53-55, and column 6, lines 40-65. Because of the similarity in structure and effects between the peptides of Willick et al and Applicants' claimed analogues, inherently the peptides of Willick et al will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants. Sufficient evidence of similarity between the peptides of Willick et al and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the peptides of Willick et al.

20. Claims 1-9, 16, 23, 30, 31, 38, 39, 46, and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Duvos et al. Duvos et al teach the PTH analogues containing the core sequence hPTH(3-35) and which can optionally be extended on the N-terminus by one or two amino acids and can optionally be extended on the C-terminus by one amino acid. Duvos et al also teaches the hPTH analogues from hPTH(1-34) to hPTH(1-38). The PTH analogues can be combined with an isotonic solution for administration and can be used to regulate the calcium

level in the body and the incorporation of calcium into the bones, and can be used to treat osteoporosis. See, e.g., column 1, lines 54-65; column 2, lines 11-22; column 3, lines 39-59; Table 1; and Tables 6a and 6b. Because of the similarity in structure and effects between the peptides of Duvos et al and Applicants' claimed analogues, inherently the peptides of Duvos et al will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants. Sufficient evidence of similarity between the peptides of Duvos et al and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the peptides of Duvos et al. Note also that claims 1-6, 46, and 47 do not exclude PTH(1-34)R^3 through PTH(1-38)R^3 as does, e.g., claim 7.

21. Claims 1-6, 46, and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Duvos et al as applied against claims 1-9, 16, 23, 30, 31, 38, 39, 46, and 47 above, and further in view of Applicants' admission of the prior art at page 1, lines 13-15. With respect to Duvos et al's disclosure of hPTH(1-34), Applicants admit at page 1, lines 13-15, of the specification that hPTH(1-34) is known to selectively activate the PTH2 receptor, and accordingly Applicants' admission is further evidence that Duvos et al anticipates Applicants' claims 1-6, 46, and 47.

22. Claims 1-3, 7, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by the Neugebauer et al article. The Neugebauer et al article teaches the amidated hPTH fragment consisting of residues 20-34. Because of the similarity in structure and effects between the fragment of the Neugebauer et al article and Applicants' claimed analogues, inherently the

fragment of the Neugebauer et al article will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants. Sufficient evidence of similarity between the fragment of the Neugebauer et al article and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the fragment of the Neugebauer et al article.

23. Claims 1-8, 13, 14, 20, 21, 27, 28, 30, 35, 36, 38, 43, 44, 46, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Chorev et al '779. Chorev et al '779 teach hHCF (i.e. hPTHrP) analogues having the same structures as set forth in Applicants' formulas I, IV, and V. See, e.g., the analogues set forth at column 3, lines 25-26 and 35-56, and Example 3. The analogues can be combined with a pharmaceutically acceptable carrier and used to treat osteoporosis or hypercalcemia (which are divergences from normal mineral metabolism and homeostasis) and hyperparathyroidism expressed as hypertension (which is abnormal blood pressure). See, e.g., column 4, lines 5-36. Because of the similarity in structure and effects between the peptides of Chorev et al '779 and Applicants' claimed analogues, inherently the peptides of Chorev et al '779 will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants. Sufficient evidence of similarity between the peptides of Chorev et al '779 and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the peptides of Chorev et al '779.

24. Claims 1-10, 16, 17, 23, 24, 30-32, 38-40, 46, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakagawa et al. Nakagawa et al teach hPTH analogues which have the same structure as Applicants' formulas I, II, and III. See, e.g., column 6, lines 8-32. The analogues are combined with pharmaceutically acceptable carriers and administered for the treatment of osteoporosis (which is a divergence from normal mineral metabolism and homeostasis) and hypertension (which is abnormal blood pressure). See, e.g., column 3, lines 44-68. Because of the similarity in structure and effects between the peptides of Nakagawa et al and Applicants' claimed analogues, inherently the peptides of Nakagawa et al will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants. Sufficient evidence of similarity between the peptides of Nakagawa et al and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the peptides of Nakagawa et al.

25. Claims 1-10, 13, 16, 17, 20, 23, 24, 27, 30-32, 35, 38-40, 43, 46, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by the WO Patent Application '193. The WO Patent Application '193 teaches analogues of PTH and PTHrP which have the same structure as Applicants' formula I, II, III, and IV. See, e.g., pages 2-5. Note also that the WO Patent Application '193 teaches PTH analogues in which A_{12} can be D-Ala. The WO Patent Application '193 teaches the peptides in combination with pharmaceutically acceptable carriers and teaches the administration of the peptides to stimulate bone growth in a mammal, i.e. for the treatment of

osteoporosis. See, e.g., page 6, line 30 - page 8, line 19. Osteoporosis is a divergence from normal mineral metabolism and homeostasis. Because of the similarity in structure and effect between the analogues of the WO Patent Application '193 and Applicants' claimed analogues, inherently the analogues of the WO Patent Application '193 will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants. Sufficient evidence of similarity between the analogues of the WO Patent Application '193 and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the analogues of the WO Patent Application '193.

26. Claims 1-3, 7, 9, 10, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by the Chorev et al article. The Chorev et al article teaches analogues of PTH and PTHrP which have the same structures as Applicants' formulas I-V. See, e.g., Table II. Because of the similarity in structure between the peptides of the Chorev et al article and Applicants' claimed analogues, inherently the peptides of the Chorev et al article will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to the same extent claimed by Applicants. Sufficient evidence of similarity between the peptides of the Chorev et al article and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the peptides of the Chorev et al article.

27. Claims 4-6, 8, 16, 17, 20, 21, 23, 24, 27, 28, 30-32, 35, 36, 38-40, 43, 44, 46, and 47 are rejected under 35 U.S.C. 103(a) as being obvious over the Chorev et al article. Application of the

Chorev et al article is the same as in the above rejection of claims 1-3, 7, 9, 10, 13, and 14. The Chorev et al article establishes that its analogues have agonist, partial agonist, and/or antagonist activities, but does not teach their combination with pharmaceutically acceptable carriers and their administration in vivo. It would have been obvious to one of ordinary skill in the art at the time Applicants' invention was made to combine the analogues of the Chorev et al article with pharmaceutically acceptable carriers and to administer them in vivo to treat diseases which are typically treated with other PTH and PTHrP analogues, including abnormal calcium metabolism and homeostasis, because the Chorev et al article's disclosure of in vitro activity for the analogues is reasonably predictive of in vivo operability, because it is desirable to treat such diseases in vivo, and because therapeutic agents administered in vivo are routinely combined with pharmaceutically acceptable carriers for ease of storage, handling, measurement, and administration.

28. Claims 1-10, 16, 17, 23, 24, 30-32, 38-40, 46, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Rosenblatt et al '223. Rosenblatt et al '223 teaches parathyroid hormone analogues including [D-Phe^{7},Tyr^{34}]hPTH(7-34)NH_2. The analogues can be combined with pharmaceutically acceptable carriers and administered for the treatment of osteoporosis or hypercalcemia (which are divergences from normal mineral metabolism and homeostasis) and hypertension (which is abnormal blood pressure). See, e.g., column 2, lines 37-43, and column 5, line 18 - column 6, line 8. Because of the similarity in structure and effects between the analogues of Rosenblatt et al '223 and Applicants' claimed analogues, inherently the analogues of Rosenblatt et al '223 will selectively bind to the PTH2 receptor and will agonize or antagonize the receptor to

the same extent claimed by Applicants. Sufficient evidence of similarity between the analogues of Rosenblatt et al '223 and Applicants' claimed analogues is deemed to be present to shift the burden to Applicants to provide evidence that their claimed analogues are unobviously different than the analogues of Rosenblatt et al '223.

29. Claims 12, 15, 19, 22, 26, 29, 34, 37, 42, and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 11, 18, 25, 33, and 41 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art of record does not teach or suggest peptides having the amino acid sequences recited in instant claims 11, 12, or 15.

30. The references cited but not applied are essentially duplicative of the references applied above.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey E. Russel at telephone number (703) 308-3975. The examiner can normally be reached on Monday-Thursday from 8:30 A.M. to 6:00 P.M. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Cecilia Tsang can be reached at (703) 308-0254. The fax number for Art Unit 1654 for formal communications is (703) 305-3014; for informal communications such as proposed amendments, the fax number (703) 305-7939 can be used. The telephone number for the Technology Center 1 receptionist is (703) 308-0196.

Jeffrey E. Russel

Primary Patent Examiner

Art Unit 1654

JRussel

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